AIRLESS PAINT SPRAYER SERVICE/OPERATION MANUAL

AIRLESSCO Model 450

001-787 Sept 08

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AIRLESSCO®

INTRODUCTION

Your new Airlessco 450 or ALLPRO 410E airless paint sprayer is designed to meet the demands of the professional painting contractor as well as the homeowner. The famous Airlessco slow-stroking stainless steel piston pump delivers extra long life for the piston, packings, valve seats and balls. The patented packing system is self-adjusting, extending packing life and reducing repacking costs. It's large high-torque DC electric motor runs slower reducing heat. The motor is externally fan cooled and totally enclosed to reduce brush wear and to prevent the ignition of paint fumes in the motor.

	Model 450
Max Pressure	3000 PSI
Output (FreeFlow)	0.50 GPM
Output (At Pressure)	0.46 GPM
Tip Size (1 Gun)	0.021 in.
Motor	DC TEFC 0.06 HP

WARNING

HANDLE THIS UNIT AS YOU WOULD A LOADED FIREARM! HIGH PRESSURE SPRAY CAN CAUSE EXTREMELY SERIOUS INJURY. OBSERVE ALL WARNINGS!

MANUAL NOTATIONS

WARNING - Alerts user to avoid or correct conditions that could cause bodily injury.

CAUTION - Alerts user to avoid or correct conditions that could cause damage to or destruction of equipment.

IMPORTANT - Alerts users to steps or procedures that are essential to proper equipment repair and maintenance.

NOTE - Identifies essential procedures or extra information.

BEFORE OPERATING THIS UNIT, READ AND FOLLOW ALL SAFETY WARNINGS AND INSTRUCTIONS RELATED TO THE USAGE OF THIS EQUIPMENT ON PAGES 2, 3 & 4. READ, LEARN, AND FOLLOW THE PRESSURE RELIEF PROCEDURE ON PAGE 8 OF THIS MANUAL.

All Service Procedures to be performed by an Authorized Airlessco Service Center ***ONLY***.
NO MODIFICATIONS or alterations of any ***AIRLESSCO*** Equipment or part is allowed.

WARNINGS

MEDICAL ALERT - Airless Spray Wounds

If any fluid appears to penetrate your skin, get EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT. Tell the doctor exactly what fluid was injected. Have him read the following "NOTE TO PHYSICIAN".

NOTE TO PHYSICIAN: Injection in the skin is a traumatic injury. It is important to treat the injury surgically as soon as possible. DO NOT DELAY treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

WARNING ***HIGH PRESSURE SPRAY CAN CAUSE EXTREMELY SERIOUS INJURY. OBSERVE ALL WARNINGS. THIS SPRAYER IS FOR PROFESSIONAL USE ONLY.***

INJECTION HAZARD

FLUIDS UNDER HIGH PRESSURE FROM SPRAY OR LEAKS CAN PENETRATE THE SKIN AND CAUSE EXTREMELY SERIOUS INJURY, INCLUDING THE NEED FOR AMPUTATION.

NEVER point the spray gun towards anyone or at any part of the body.

NEVER put hand or fingers over the spray tip. Do not use rag or other materials over your fingers. Paint will penetrate through material and into the hand.

NEVER try to stop or deflect leaks with your hand or body.

ALWAYS have gun tip guard in place when spraying.

ALWAYS lock gun trigger when you stop spraying.

ALWAYS remove tip from the gun to clean it.

NEVER try to "blow back" paint, it's not an air sprayer.

ALWAYS follow the ***PRESSURE RELIEF PROCEDURE,*** as shown on page 8, before cleaning or removing the spray tip or servicing any system equipment.

Be sure equipment safety devices are operating properly before each use.

ALWAYS tighten all fluid connections before each use.

MEDICAL TREATMENT

If any fluid appears to penetrate your skin, get ***EMERGENCY CARE AT ONCE.***

DO NOT TREAT AS A SIMPLE CUT.

- Go to an emergency room immediately.
- Tell the doctor you suspect an injection injury.
- Tell him what kind of material you were spraying with and have him read ***NOTE TO PHYSICIAN*** above.

GENERAL PRECAUTION

NEVER alter equipment in any manner.

NEVER smoke while in spraying area.

NEVER spray highly flammable materials.

NEVER use around children.

NEVER allow another person to use sprayer unless he is thoroughly instructed on its' safe use and given this operators manual to read.

ALWAYS wear a spray mask, gloves and protective eye wear while spraying.

ALWAYS ensure fire extinquishing equipment is readily available and properly maintained.

NEVER LEAVE SPRAYER UNATTENDED WITH PRESSURE IN THE SYSTEM. FOLLOW PRESSURE RELIEF PROCEDURES ON PAGE 8.

ALWAYS INSPECT SPRAYING AREA

Keep spraying area free from obstructions.

Make sure area has good ventilation to safely remove vapors. ***NEVER*** keep flammable material in spraying area.

NEVER spray in vicinity of open flame or other sources of ignition. Spraying area must be at least 20 ft. away from spray unit.

SPRAY GUN SAFETY

ALWAYS set safety lock on the gun in "***LOCKED***" position when not in use and before servicing or cleaning.

DO NOT remove or modify any part of gun.

ALWAYS remove spray tip when cleaning.

Flush unit with ***LOWEST POSSIBLE PRESSURE.***

CHECK operation of all gun safety devices before each use. Be very careful when removing the spray tip or hose from gun. A plugged line contains fluid under pressure. If the tip or line is plugged, follow the ***PRESSURE RELIEF PROCEDURE*** as outlined on page 8.

TIP GUARD

ALWAYS have the tip guard in place on the spray gun while spraying. The tip guard alerts you to the injection hazard and helps prevent accidentally placing your fingers or any part of your body close to the spray tip.

SPRAY TIP SAFETY

USE EXTREME CAUTION when cleaning or changing spray tips. If the spray tip clogs while spraying, engage the gun safety latch immediately.

ALWAYS follow the ***PRESSURE RELIEF PROCEDURE*** before removing the spray tip to clean it.

NEVER wipe off build up around the spray tip.

ALWAYS remove tip & tip guard to clean ***AFTER*** pump is turned off and the pressure is relieved by following the ***PRESSURE RELIEF PROCEDURE.***

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS - CONTINUED

HOSES

Tighten all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling and result in an injection injury or serious bodily injury.

Use only hose that has a spring guard. The spring guard helps protect the hose from kinks or other damage which could result in hose rupture and cause an injection injury.

NEVER use a damaged hose, which can result in hose failure or rupture and cause in injection injury or other serious bodily injury or bodily damage. Before each use, check entire hose for cuts, leaks, abrasion or bulging of cover, or damage or movement of couplings. If any of these conditions exist, replace the hose immediately. Never use tape or any device to try to mend the hose as it cannot contain the high pressure fluid. ***NEVER ATTEMPT TO RECOUPLE THE HOSE.*** High pressure hose is not recoupleable.

Help prevent damage to the hose by handling and routing it carefully. Do not move the sprayer by pulling it with the hose.

LABELING

Keep all labels on the unit clean and readable. Replacement labels are available from manufacturer.

TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in eyes or on skin, inhaled or swallowed. Know the hazards of the fluid you are using. Store & dispose of hazardous fluids according to manufacturer, local, state & national guidelines.
ALWAYS wear protective eyewear, gloves, clothing and respirator as recommended by fluid manufacturer.

GROUNDING

Ground the sprayer and other components in the system to reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage.

ALWAYS GROUND ALL OF THESE COMPONENTS:
1. Sprayer: Connect a ground wire and clamp (supplied) to a true earth ground.
2. Fluid Hose: use only grounded hoses.
3. Spray gun or dispensing valve: grounding is obtained through connection to a properly grounded fluid hose and pump.
4. Object being sprayed: according to your local code.
5. All solvent pails used when flushing should only be metal pails which are conductive.

Once each week, check electrical resistance of hose (when using multiple hose assemblies, check overall resistance of unpressurized hose must not exceed 29 megohms (max) for any coupled length or combination of hose lengths. If hose exceeds these limits, replace it immediately.

Never exceed 500 Ft. (150 m.) overall combined hose length to assure electrical continuity.

KEEP CLEAR OF MOVING PARTS

Keep clear of moving parts when starting or operating the sprayer. Do not put your fingers into any openings to avoid amputation by moving parts or burns on hot parts.Precaution is the best insurance against an accident.

When starting the engine, maintain a safe distance from moving parts of the equipment.

Before adjusting or servicing any mechanical part of the sprayer, follow the ***PRESSURE RELIEF PROCEDURE*** on page 8, and remove the ignition cable from the spark plug to prevent accidental starting of sprayer.

UL RECOMENDATION FOR MINIMUM GAUGE EXTENSION CORD

AMPERAGE RATING RANGE	VOLTAGE	LENGTH OF CORD IN FEET								
		25	50	100	150	200	250	300	400	500
5-6	120	18	16	12	12	10	10	8	8	6
6-8	120	18	16	12	10	10	8	6	6	6
8-10	120	18	14	12	10	8	8	6	6	4
10-12	120	16	14	10	8	8	6	6	4	4

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS - CONTINUED

AVOID COMPONENT RUPTURE

This sprayer operates at 3000 psi (205 bar). ***ALWAYS*** be sure that all components and accessories have a maximum working pressure of at least 3000 psi to avoid rupture which can result in serious bodily injury including injection and property damage.
NEVER leave a pressurized sprayer unattended to avoid accidental operation of it which could result in serious bodily injury.
ALWAYS follow the ***PRESSURE RELIEF PROCEDURE*** whenever you stop spraying and before adjusting, removing or repairing any part of the sprayer.
NEVER alter or modify any part of the equipment to avoid possible component rupture which could result in serious bodily injury and property damage.
NEVER use weak or damaged or non-conductive paint hose. Do not allow kinking or crushing of hoses or allow it to vibrate against rough or sharp or hot surfaces. Before each use, check hoses for damage and wear and ensure all fluid connections are secure.
REPLACE any damaged hose. ***NEVER*** use tape or any device to mend the hose.
NEVER attempt to stop any leakage in the line or fittings with your hand or any part of the body. Turn off the unit and release pressure by following ***PRESSURE RELIEF PROCEDURE.***
ALWAYS use approved high pressure fittings and replacement parts.
ALWAYS ensure fire extinquishing equipment is readily available and properly maintained.

WARNING: Do not use halogenated solvents in this system. The prime valve, 2 gun manifold and most airless guns have aluminum parts and may explode. Cleaning agents, coatings, paints or adhesives may contain halogenated hydrocarbon solvents. DON"T TAKE CHANCES! Consult your material suppliers to be sure. Some of the most common of these solvents are: Carbontetrachloride, Chlorobenzene, Dichloroethane, Dichloroethyl Ether, Ethylbromide, Ethylchloride, Tethrachloethane. Alternate valves and guns are available if you need to use these solvents.

IMPORTANT: United States Government safety standards have been adopted under the Occupational Safety & Health Act. These standards, particularly the General Standards, Part 1910, & the Construction Standards, part 1926 should be consulted.

PREVENT STATIC SPARKED FIRE/ EXPLOSIONS

ALWAYS be sure all equipment and objects being sprayed are properly grounded.
ALWAYS ground sprayer, paint bucket and object being sprayed. See "grounding" on page 3 for detailed grounding information. Vapors created when spraying can be ignited by sparks. To reduce the risk of fire, always locate the sprayer at least 20 feet (6 m.) away from the spray area.
DO NOT plug in or unplug any electrical cords in the spray area, which can create sparks, when there is any chance of igniting vapors still in the air. Follow the coating & solvent manufacturers safety warnings and precautions.
Use only conductive fluid hoses for airless applications. Be sure gun is grounded through hose connections. Check ground continuity in hose & equipment. Overall (end to end) resistance of unpressurized hose must not exceed 29 megohms for any coupled length or combination of hose length. Use only high pressure airless hoses with static wire approved for 3000 psi.

FLUSHING

Reduce the risk of injection injury, static sparking or splashing by following the specific cleaning procedure on page 5.
ALWAYS follow the ***PRESSURE RELIEF PROCEDURE*** on page 8.
ALWAYS remove the spray tip before flushing. Hold a metal part of the gun firmly to the side of a metal pail and use the lowest possible fluid pressure during flushing.
NEVER use cleaning solvents with flash points below 140 degress F. Some of these are: acetone, benzene, ether, gasoline, naphtha. Consult your supplier to be sure.
NEVER SMOKE IN THE SPRAYING/CLEANING AREA.

WHEN SPRAYING & CLEANING WITH FLAMMABLE PAINTS OR THINNERS:

1. When spraying with flammable liquids, the unit must be located a minimum of 25 feet away from the spraying area in a well ventilated area. Ventilation must be sufficient enough to prevent the accumulation of vapors.
2. To eliminate electrostatic discharge, ground the spray unit, paint bucket and spraying object. Use only high pressure airless hoses approved for 3000 psi which is conductive.
3. Remove spray tip before cleaning gun and hose. Make contact of gun with bucket and spray without the tip in a well ventilated area, into the grounded steel bucket.
4. Never use high pressure in the cleaning process. ***USE MINIMUM PRESSURE.***
5. Do not smoke in spraying/cleaning area.

FLUSHING

1. NEW SPRAYER

Your unit was factory tested in an oil solution which was left in the pump. Before using oil-base paint, flush with mineral spirits only.
Before using water-base paint flush with mineral spirits, followed by soapy water, then a clean water flush.

2. CHANGING COLORS

Flush with a compatible solvent such as mineral spirits or water.

3. CHANGING FROM WATER-BASE TO OIL-BASE PAINT

Flush with soapy water, then mineral spirits.

4. CHANGING FROM OIL-BASE TO WATER-BASE PAINT

Flush with mineral spirits, followed by soapy water, then a clean water flush.

5. STORAGE

Oil-base paint: Flush with mineral spirits.

Water-base paint: Flush with water, then mineral spirits and leave the pump, hose and gun filled with mineral spirits.

For longer storage, use mixture of mineral spirits and motor oil (half & half). Shut off the sprayer, follow ***PRESSURE RELIEF PROCEDURE*** on page 8 to relieve pressure and make sure prime valve is left open.

6. START UP AFTER STORAGE

Before using water-base paint, flush with soapy water and then a clean water flush.
When using oil-base paint, flush out the mineral spirits with the material to be sprayed.

HOW TO FLUSH

FIG. 1
REMOVE SPRAY TIP

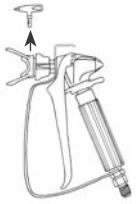


FIG. 2
PRESSURE CONTROL KNOB

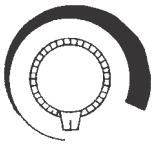
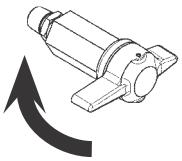


FIG. 3
PRIME VALVE

CLOSED
(Pressure)



OPEN
(Priming & Pressure Relief

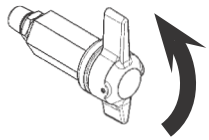


FIG. 4
MAINTAIN FIRM METAL TO METAL CONTACT BETWEEN GUN AND CONTAINER

Flushing Procedure

1. Be sure the gun safety latch is engaged and there is no spray tip in the gun. Refer to Fig. 1. Refer to your separate instruction manual provided with your gun on its safety features and how to engage safety latch.
2. Pour enough clean, compatible solvent into a large, empty metal pail to fill the pump and hoses.
3. Place the suction tube into the pail or place the pail under the pump.
4. Turn pressure control knob to low. Refer to Fig. 2.
5. Open the prime valve to the open - "Priming Position". This will allow an easy start. Refer to Fig. 3.
6. Turn the engine ON/OFF switch to ON.
7. Point the gun into the metal pail and hold a metal part of the gun firmly against the pail Refer to fig.4.
8. Disengage the gun safety latch and squeeze the trigger. At the same time, slowly turn the pressure control knob clockwise just enough to move liquid at low pressure.
9. Allow the pump to operate until clean solvent comes from the gun.

WARNING: To reduce the risk of static sparking, which can cause fire or explosion, always hold a metal part of the gun firmly against the metal pail when flushing. This also reduces splashing. Refer to Fig 4.

10. Release the trigger and engage the gun safety latch.
11. If you are going to start spraying, place the pump or suction tube into the supply container. Release the gun safety latch and trigger the gun into another empty, metal container, holding a metal part of the gun firmly against the metal pail (Fig. 4), forcing the solvent from the pump and hose. When paint starts coming from gun, turn pressure control knob to minimum pressure, place prime valve in prime (open) position and engage the gun safety latch.
12. If you are going to store the sprayer, remove the suction tube or pump from the solvent pail force the solvent from the pump and hose. Engage the gun safety latch and refer to the "Storage" Procedure above. Step 5.
13. Whenever you shut off the sprayer follow ***PRESSURE RELIEF PROCEDURE*** warning on page 8.

SETTING UP

1. CONNECT THE HOSE AND GUN

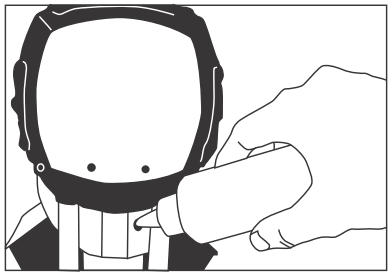
a. Remove the plastic cap plug from the outlet and screw a conductive or grounded 3000 psi spray hose onto fluid outlet.
b. Connect an airless spray gun to the other end of the hose, but do not install the spray tip yet!

NOTE: Do not use thread sealer on swivel unions as they are made to self seal.

2. FILL THE PACKING NUT/WET CUP

FIG. 5

Fill the Packing Nut/Wet Cup with 5 drops of Airlessco Throat Seal Oil (TSO).



3. ELECTRICAL SERVICE

Be sure the electrical service is 120 VAC, 15 amp minimum, and that the outlet you use is properly grounded. ***NOTE: FOR GENERATOR POWER, A MINIMUM OF 7000 WATT GENERATOR WITH VOLTAGE REGULATION MUST BE USED.***

4. GROUNDING

WARNING: To reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage, always ground the sprayer and system components and the object being sprayed, as instructed in the safety warning section of this manual.

5. FLUSH THE SPRAYER

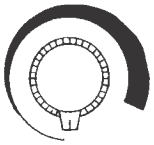
Follow “Flushing Procedure” on page 5 of this manual.

STARTING UP

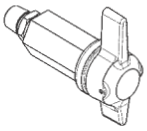
1. LEARN THE FUNCTIONS OF THE CONTROLS.

PRIME/PRESSURE (PR) RELIEF VALVE is used to prime pump and to relieve pressure from gun, hose and tip. Prime/Pressure Relief Valve

PRESSURE CONTROL KNOB is used to adjust pressure. Turn clockwise (CW) to increase pressure and counterclockwise (CCW) to decrease pressure.



(Prime/PR Valve) Used to relieve pressure from gun, hose & tip and to primethe unit when in ***OPEN*** position. (It is in open position when there is a wider gap between valve handle and cam body.)



When in ***CLOSED*** position,there is only a very slight gapbetween handle & body. When closed the system ispressurized. Handle as a loaded firearm!

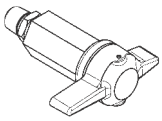
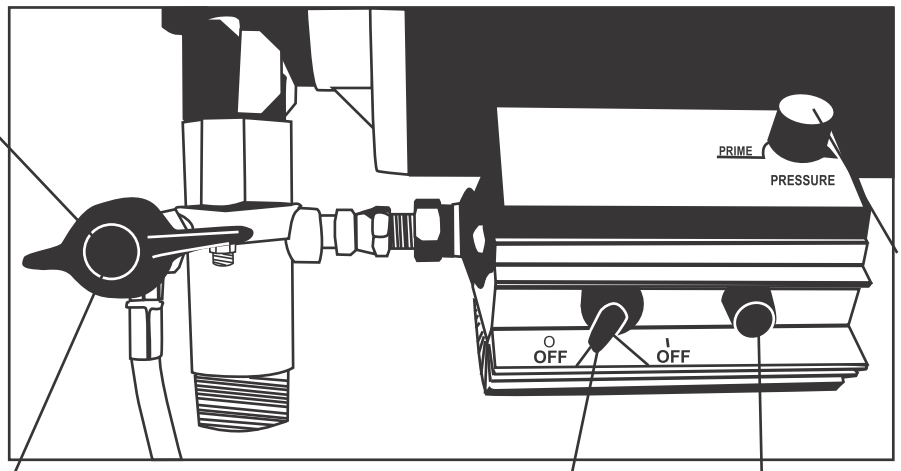


FIG. 6

PRIME/PRESSURE RELIEF VALVE (PRIME/PR VALVE): Used to relieve pressure from gun/hose/tip and to primethe unit when in OPEN position. (It is in open position when there is a wider gap between valve handle and cam body). Learn and follow the ***PRESSURE RELIEF PROCEDURE*** on page 8 of this manual. When in closed position (very slight gap) the system is pressurized and ready to spray.



PRESSURE CONTROL KNOB: used to adjust pressure only. Turn clockwise to increase pressure and counterclockwise to decrease pressure.

When you turn the valve handle and the gap between the valve handle and the cam body becomes wider - this means the valve is in the open position. It is in the closed position when the gap becomes very small.

ON/OFF SWITCH

FUSE

STARTING UP

2. PREPARE THE MATERIAL

a. Prepare the material according to the material manufacturer's recommendations.
b. Place the suction tube into the material container.

3. STARTING THE SPRAYER

a. Prime/PR Valve must be "OPEN" in the priming position.
b. When you have ensured that the gun safety latch is engaged, attach tip and safety guard.
c. Turn the engine ON/OFF switch to the "ON" position.
d. Turn Pressure Control Knob clockwise to prime the pump.
e. After the pump is primed, turn Prime/PR Valve to the "Closed" position.
f. Turn Pressure Control Knob to the desired spray pressure.
g. Disengage the gun safety latch and you are ready to spray.

4. ADJUSTING THE PRESSURE

a. Turn the Pressure Control Knob Clockwise to increase pressure and counterclockwise to decrease pressure.
b. Always use the lowest pressure necessary to completely atomize the material.

NOTE: OPERATING THE SPRAYER AT HIGHER PRESSURE THAN NEEDED, WASTES MATERIAL, CAUSES EARLY TIP WEAR, AND SHORTENS SPRAYER LIFE.

c. If more coverage is needed, use a larger tip rather than increasing the pressure.

d. Check the spray pattern. The tip size and angle determines the pattern width and flow rate.

WARNING

FOLLOW THE "PRESSURE RELIEF PROCEDURE".

To reduce the risk of injection, never hold your hand, body, fingers or hand in a rag in front of the spray tip when cleaning or checking for a cleared tip. Always point the gun toward the ground or into a waste container when checking to see if the tip is cleared or when using a self-cleaning tip.

WARNING

When you spray into the paint bucket, always use the lowest spray pressure and maintain firm metal to metal contact between gun and container.

WARNING

To stop the unit in an emergency, turn the engine off. Then relieve the fluid pressure in the pump and hose as instructed in the ***PRESSURE RELIEF PROCEDURE.***

5. WHEN SHUTTING OFF THE SPRAYER

a. Whenever you stop spraying, even for a short break, follow the ***PRESSURE RELIEF PROCEDURE.***
b. Clean the tip & gun as recommended in the seperate Gun Manual supplied with the gun.
c. Flush the sprayer at the end of each work day, if the material you are spraying is water-based, or if it could harden in the sprayer overnight. See "Flushing". Use a compatible solvent to flush, then fill the pump and hoses with an oil based solvent such as mineral spirits.
d. For long term shutdown or storage, refer to the "Flushing" section of this manual.

WARNING

Be sure to relieve pressure in the pump after filling with Airlessco Pump Conditioner.

AVOIDING TIP CLOGS

There is an easy way to keep the outside of the tip clean from material build up:

Every time you stop spraying, for even a minute, lock the gun and submerge it into a small bucket of thinner suitable for the material sprayed.

Thinner will dissolve the buildup of paint on the outside of tip, tip guard and gun much more effectively if the paint doesn't have time to dry out completely.

PRESSURE RELIEF PROCEDURE

IMPORTANT!

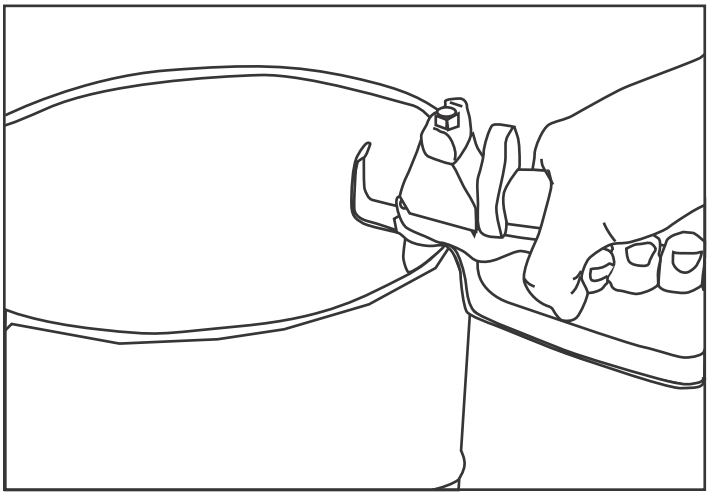
TO AVOID POSSIBLE SERIOUS BODY INJURY, ALWAYS FOLLOW THIS PROCEDURE WHENEVER THE SPRAYER IS SHUT OFF, WHEN CHECKING IT, WHEN INSTALLING, CHANGING OR CLEANING TIPS, WHENEVER YOU STOP SPRAYING, OR WHEN YOU ARE INSTRUCTED TO RELIEVE THE PRESSURE.

1. Engage the gun safety latch. Refer to the separate instruction manual provided with your gun on its safety features and how to engage safety latch.

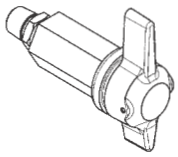
2. Turn the unit off.

3. Disengage the gun safety latch and trigger the gun to relieve residual fluid pressure.

HOLD METAL PART OF THE GUN IN CONTACT WITH GROUNDED METAL PAIL. USE MINIMUM PRESSURE !



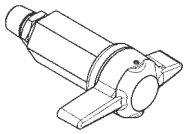
4. Turn Prime/Pressure Relief Valve (PR Valve) to the open (priming) position to relieve residual fluid pressure.



THERE WILL BE A WIDER GAP BETWEEN VALVE HANDLE AND CAM BODY WHEN IN OPEN POSITION. IN THE CLOSED POSITION THERE IS ONLY A VERY SLIGHT GAP.

NOTE: THE VALVE HANDLE CAN MOVE BOTH CLOCKWISE AND COUNTER CLOCKWISE AND CAN FACE DIFFERENT DIRECTIONS.

5. Re-engage gun safety latch and close Prime/Pressure Relief Valve.



If the ***SPRAY TIP OR HOSE IS CLOGGED***, follow Step 1 through 5 above. Expect paint splashing into the bucket while relieving pressure during Step 4.

If you suspect that pressure hasn't been relieved due to damaged Prime/Pressure Relief Valve or other reason, engage the gun safety latch and take your unit to an authorized Airlessco Service Center.

DAILY MAINTENANCE

1. Keep the displacement pump packing nut/wet cup lubricated with Airlessco TSO (Throat Seal Oil) at all times. The TSO helps protect the rod and the packings.
2. Inspect the packing nut daily. Your pump has a patented Triple Life Packing System. Packing life will be extended a minimum of three times if the following "Packing Adjustment" procedure is followed:

IF SEEPAGE OF PAINT INTO THE PACKING NUT AND/OR MOVEMENT OF THE PISTON UPWARD IS FOUND (WHILE NOT SPRAYING), THE PACKING NUT SHOULD BE TIGHTENED ENOUGH TO STOP LEAKAGE ONLY, BUT NOT ANY TIGHTER. OVERTIGHTENING WILL DAMAGE THE PACKINGS AND REDUCE THE PACKING LIFE.

AIRLESS SPRAY GUN OPERATION

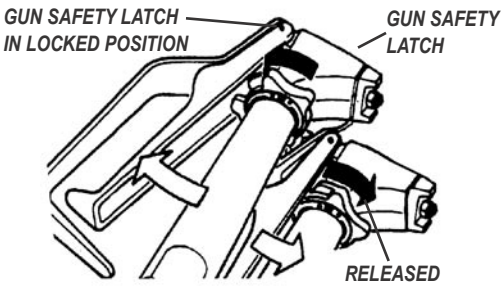
SPRAY

Attach spray gun to airless unit and tighten fittings securely. Set the gun safety latch. (Also may be called gun safety lock, or trigger lock)

* The gun safety latch should always be set when the gun is not being triggered.

Read all warnings and safety precautions supplied with the spray gun and in product manual.

FIG. 7



MAJOR COMPONENTS OF SPRAY GUN AND REVERSIBLE SPRAY TIP

FIG. 8

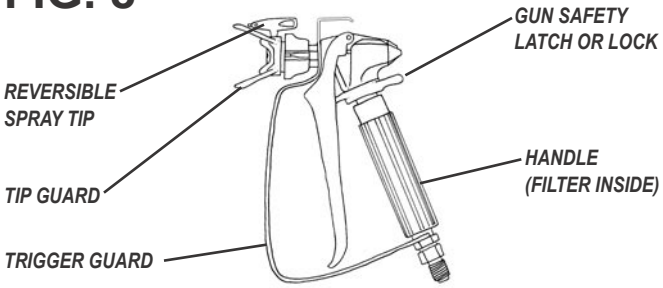
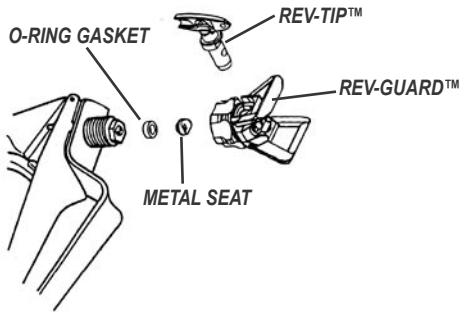


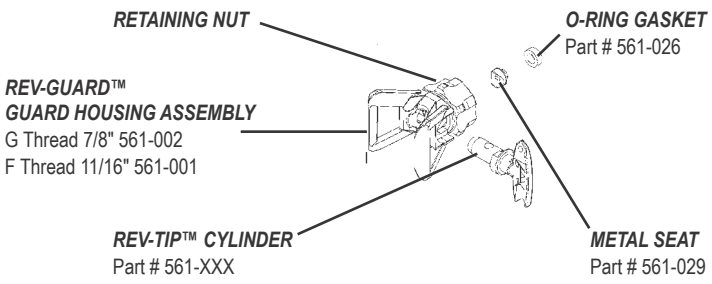
FIG. 9



SPRAY TIP ASSEMBLY

1. Be sure ***PRESSURE RELIEF PROCEDURE*** is followed before assembling tip and housing to the gun.
2. Lock gun safety latch.
3. Insert **REV-TIP™** cylinder into the **REV-GUARD™** (guard housing assembly).
4. Guide metal seat into **REV-GUARD™** (guard housing assembly) through retaining nut & turn until it seats against the cylinder.
5. Insert O-Ring gasket on metal seat so it fits in the grooves.
6. Finger tighten **REV-GUARD™** retaining nut on gun.
7. Turn guard in the desired position.
8. Completely tighten the retaining nut.

FIG. 10



CLEANING SPRAY GUN

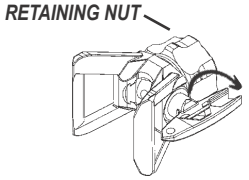
Immediately after the work is finished, flush the gun out with a solvent. Brush pins with solvent and oil them lightly so they will not collect dried paint.

CLEANING FILTER IN GUN HANDLE

To clean the filter, use a brush dipped in an appropriate solvent. Change or clean filters at least once a day. Some types of latex may require a filter change after four hours of operation.

TO REMOVE CLOGS FROM SPRAY TIP

1. Lock gun safety latch.
2. Turn **REV-TIP™** handle 180 degrees.
3. Disengage trigger lock & trigger gun into pail.
4. If the **REV-TIP™** handle appears locked (resists turning), loosen the retaining nut. The handle will now turn easily.
5. Engage gun safety latch & return handle to the spray position.



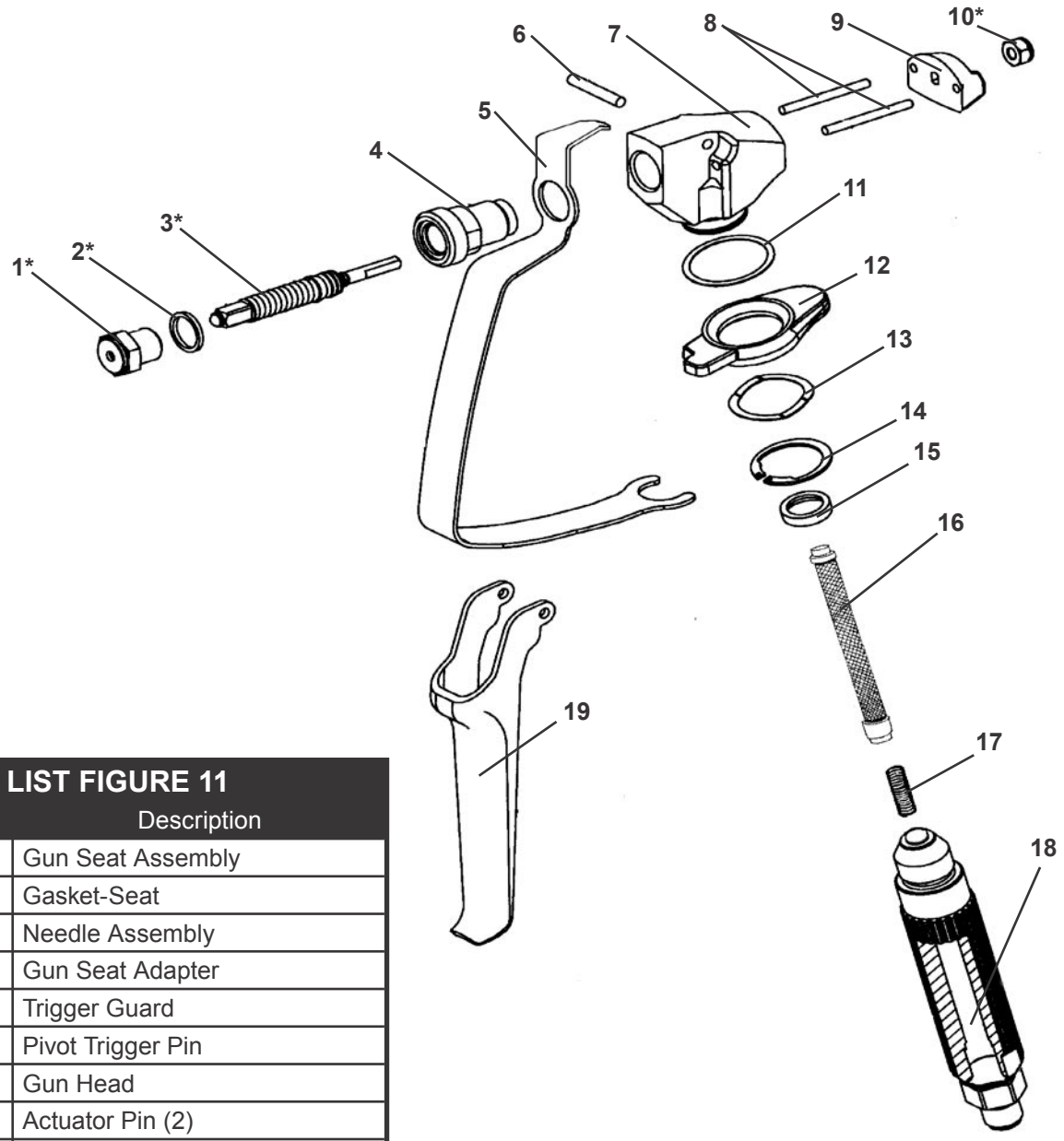
Spray Position Shown

CLOGGED FLAT TIP

Should the spray tip become clogged, relieve pressure from hose by following the ***PRESSURE RELIEF PROCEDURE.*** Secure gun with the safety latch, take off guard, take out the tip, soak in appropriate solvent & clean with a brush. (Do not use a needle or sharp pointed instrument to clean the tip. The tungsten carbide is brittle and can chip.)

AIRLESS SPRAY GUN

FIG. 11



PARTS LIST FIGURE 11		
Item No.	Part No.	Description
1	120-530*	Gun Seat Assembly
2	120-535*	Gasket-Seat
3	120-520*	Needle Assembly
4	120-529	Gun Seat Adapter
5	120-562	Trigger Guard
6	120-539	Pivot Trigger Pin
7	120-509	Gun Head
8	120-540	Actuator Pin (2)
9	120-536	Gun Plate
10	120-038*	Nut
11	120-056	Plastic Washer
12	120-538	Gun Trigger Lock
13	120-055	Wave Washer
14	120-049	Retaining Ring
15	120-082	Handle Seal
16	120-090CX	Gun Filter-Coarse
	120-090FX	Gun Filter-Fine
17	120-088	Spring
18	120-099	Gun Handle Assy
19	120-506	Gun Trigger (008 Gun)
*	120-534	Gun Repair Kit

AIRLESS SPRAY GUN TROUBLESHOOTING

DEFECTS	CAUSE	CORRECTION
Coarse spray	Low pressure	Increase the pressure
Excessive fogging (overspray)	High pressure Material too thin	Reduce the pressure to satisfactory pattern distrabution Use less thinner
Patten too wide	Spray angle too large	Use smaller spray angle tip
Pattern too narrow	Spray angle too small	Use larger spray angle tip (if coverage is OK, try tip in same nozzle group)
too much material	Nozzle too large Material too thin Pressure too high	Use smaller nozzle Reduce pressure
too little material	Nozzle too small	Use next larger nozzle Material too thick
thin distribution in center of pattern “horns”	Worn tip Wrong tip	Change to new tip Use nozzle with narrow spray angle
Thick skin of work	Material too viscous Application too heavy	Thin cautiously Reduce pressure and/or use tip in next smaller nozzle group
Coating fails to close & smooth over	Material too viscous	Thin cautiously
Spray pattern irregular, deflected	Orifice clogged Tip damaged	Clean carefully Replace with new tip
Craters or pock marks, bubbles on work	Solvent balance	Use 1 to 3% “short solvents remainder “long” solvents (this is most likely to happen with material of low viscosity, lacquers, etc.)
Clogged screens	Extraneous material in paint Course pigments Poorly milled pigments (paint pigments glocculate)	Clean screen Use coarse screen if orifice size allows. Use courser screen, larger orifice tips. Obtain ball milled paint. If thinner has been added, test to see if a cover screen. Incompatible drop placed on top of paint mixes or flattens out on the paint mixture & thinners on the surface. If not, try different thinner in fresh batch of paint.
Excess paint builds on tip guard	Spray gun too close to surface Pressure setting too high	Hold gun further from surface sprayed Reduce pressure setting
Drips, spits from tip	Valve seat and/or ball in gun head damaged or worn	Service spray gun, replace valve assembly
Tip clogs continually	Debris in paint Gun filter missing Coarse filter mesh	Thouroughly strain the paint before use Do not operate without inlet strainer

TEST THE PATTERN

GOOD, FULL

SPOTTY PATTERN, INCREASE PRESSURE

TIP SELECTION GUIDE

Spray tip selection is based on paint viscosity, paint type, & job needs. For light viscosities (thin paints), use a smaller tip; heavier (thicker paints), use a larger tip size. Spray tip size is based on how many gallons of paint per minute can be sprayed through the tip. Do not use a tip larger than maximum pump flow rate or capacity the sprayer can accommodate. Pump flow rate is measured in gallons per minute (GPM).

REV-TIP™ for Painting Fan Width (12" from surface)		**SPRAY TIP - ORIFICE SIZE (INCHES)**														
in.	mm	.007	.009	.011	.013	.015	.017	.019	.021	.023	.025	.027	.029 .031	.035	.039	.041
4-6	102-152		209	211	213	215	217	219	221	223	225	227	229			
6-8	152-203	307	309	311	313	315	317	319	321	323	325	327		335		
8-10	203-254		409	411	413	415	417	419	421	423	425	427	431			
10-12	254-305			511	513	515	517	519	521	523	525	527	531	535		
12-14	305-356				613	615	617	619	621	623	625	627	631	635	639	641
14-16	356-406					715	717		721						739	741, 754
16-18	406-457					815		819	821				831			
20-24	508-610					***NEW WIDE TIPS:***			W21	W23	W25	W28	W29	W31		
Gun Filter	C=course-60 mesh F=Fine-100 mesh	F	F	F	F,C	C	C	C	C	C	REMOVE FILTER					
Wood Interior	Lacquer, Varnish, Stain, Sealer, Enamel	• •	• •	•	•	•										
Wood Exterior	Exterior Stain, Vinyl, Acrylic, Latex				•	•	•	•								
Masonry	Vinyl, Oil Base, Alkyd, Latex, Acrylic, Block Filler, Elastomer					• •	• •	• •	• • •	• •	• •	• •	• •	• •	• •	•
Ceiling	Hi Build, Mil White								•	•						
Structural Steel	Heaviy Coatings								•	•	•	•	•	•	•	•
Water Flow Rate @ 2000psi, 138 bar	(gpm) (lpm)			.12 .49	.18 .69	.24 .91	.31 1.17	.38 1.47	.47 1.79	.57 2.15	.67 2.54	.77 2.96	1.03 3.90	1.31 4.98	1.63 6.17	1.80 6.81
Paint Flow Rate latex paint @ 2000psi, 138 bar/1.36 spec. gr.	(gpm) (lpm)			.10 .38	.15 .57	.21 .79	.27 1.02	.33 1.25	.40 1.51	.49 1.85	.58 2.20	.66 2.50	.88 3.33	1.12 4.24	1.39 5.26	1.54 5.83
Pump Minimum Output*	(gpm) (lpm)			.25 1.0	.25 1.0	.33 1.25	.40 1.5	.50 1.9	.60 2.3	.75 2.8	.88 3.3	1.0 3.8	1.25 4.7	1.5 5.7	2.0 8.2	2.2 8.2

*Pump will support tip worn to next larger size.

Thickness of the paint coat per stroke is determined by spray tip "fan width", rate of the spray gun movement, and distance to surface. Two tips having the same tip size, but different pattern widths will deliver the same amount of paint over a different area (wider or narrower strip).
A spray tip with a narrow pattern width makes it easy to spray in tight places.
During use, especially with latex paint, high pressure will cause the orifice to grow larger. This destroys the pattern. Replace tips before they become excessively worn. Worn tips waste paint, cause overspray, make cutting-in difficult, and decreases sprayer performance.

FINE FINISH REV-TIP™

New double orifice design for lower pressure airless spraying when you need finer atomization for a smoother finish on interior trim, cabinetry, shutters, and doors

Fan Width		Orifice Size	
Inches	(mm)	.012	.014
4-6	102-152	212	214
6-8	152-203	312	314
8-10	203-254	412	414

ELECTRIC MOTOR MAINTENANCE

1. ***LUBRICATION*** - This motor is supplied with pre-lubricated ball bearings, lubricated for the life of the bearing.
2. ***MOTOR BRUSHES*** - need periodic inspection and replacement as wear indicates. Brush wear is greatly influenced by individual application. It is recommended that brush wear be checked at early intervals of operation in order to determine future required inspection. Standard Durotech brushes have an initial length of 1". When the brushes are worn to a length of 1/2" they should be replaced.

TO CHANGE THE BRUSHES:

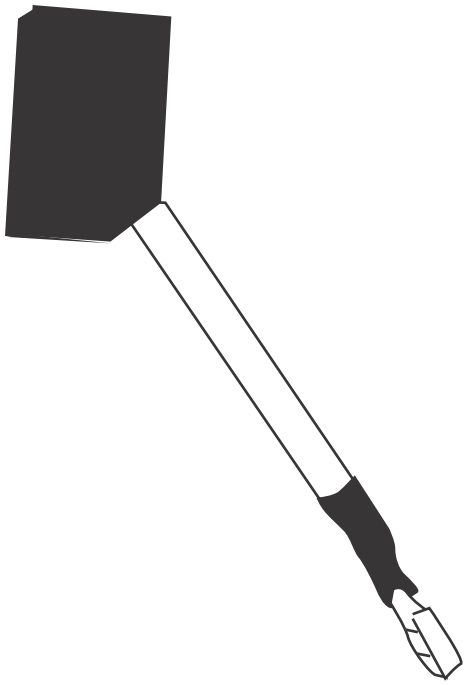
1. Unplug the machine.
2. Open the two covers at the rear of the motor.
3. Disconnect the brush wire.
4. Pull out the wire.
5. Push the brush retainer clip in and withdraw.
6. Remove the worn brushes.
7. Install new brushes in the reverse order.

For long life, new brushes (Part # 331-778 for 110 volt, Part # 331-784 for 220 - 240 volts) need to have a run in period. After changing brushes, set the machine for spraying. With a bucket of Pump Conditioner and water, a 50' 1/4" airless hose, airless gun and tip on unit, open the prime valve and switch on. The pump will now prime. With pump running in the prime mode, turn the pressure control knob to high pressure. (The pump has to cycle fast with no pressure in the pump). Run the pump for 20 minutes and the brushes will be run in.

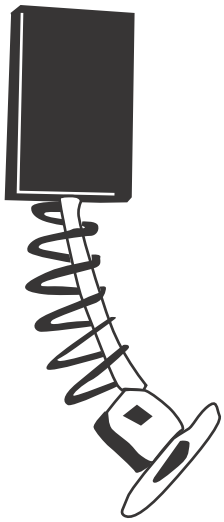
MOTOR BRUSHES

FIG. 12

Durotech (Current)
331-778



Durotech (Circa 2007)
331-784

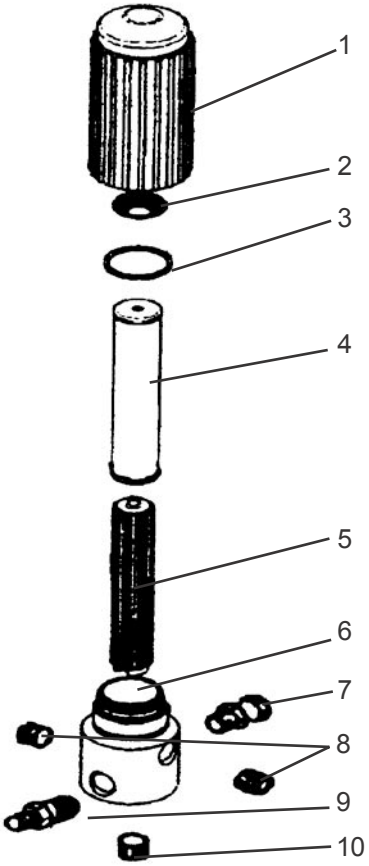


FIELD TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Unit doesn't prime	Airleak due to: •Loose suction nut • Worn o-rings • Hole in suction hose Stuck or fouled balls	 • tighten suction nut • replace o-ring (106-018) on suction seat & o-ring (106-017) below suction seat • replace suction hose • service inlet and outlet valves
Unit primes but has poor or no pressure	Pressure set too low Filter(s) are clogged Outlet valve fouled/worn Prime/pressure relief valve bypassing Packings and/or piston worn	• turn up pressure • clean or replace gun filter, inlet filter, and/or manifold filter • service outlet valve • clean or replace prime valve (100-180) • tighten packing nut • repack unit
Unit does not maintain good spraying pressure	Blown spray tip Packings and/or pistons worn Upper seat worn	• replace spray tip • repack unit • replace upper seat
Unit does not run.	Blown Fuse Electrical Faliure	• replace fuse 20A Slow Blow (331-328) • see electrical troubleshooting

OPTIONAL MANIFOLD FILTER (111-200-99)

FIG. 13



PARTS LIST FIGURE 13		
Item No.	Part No.	Description
1	111-202	Base
2	301-356	Spring
3	106-007	O-Ring
4	111-204	Filter 60 Mesh
5	111-203	Support
6	111-201	Base
7	100159	Swivel
8	100-129	Plug 3/8" (2)
9	100-109	Nipple 3/8"M x 1/4"M
10	100-028	Plug 1/4"

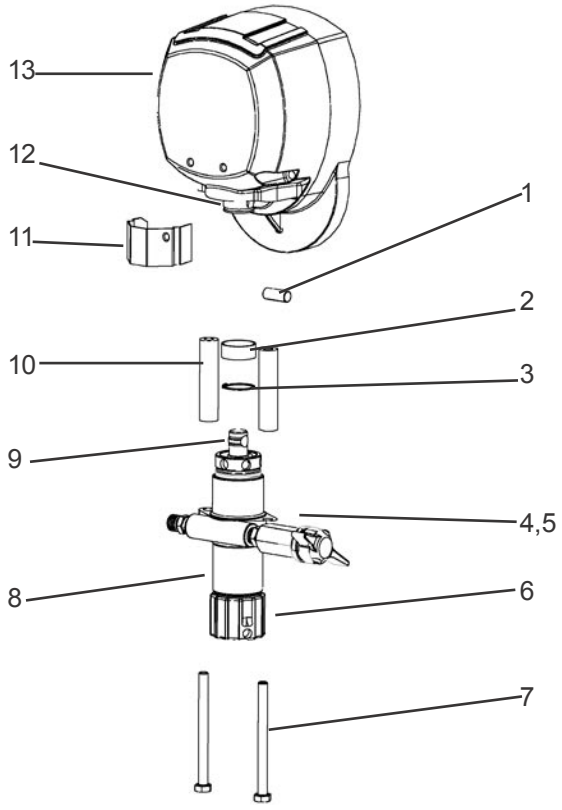
SERVICING THE FLUID PUMP

FLUID PUMP DISCONNECT

REFER TO FIGURE 14

1. Follow the Pressure Relief Procedure on page 8.
2. Flush the material you are spraying out of the machine.
3. Remove the connecting rod shield.
4. Move the piston rod to its lowest position by cycling pump slowly.
5. Turn off the motor.
6. Disconnect the sensor (331-294-99) by holding it in place with a 7/8” wrench and unscrewing the swivel connector (100-003) with an 11/16” wrench. ***DO NOT TURN THE SENSOR.***
7. Remove the retaining ring from the connecting rod and slide the sleeve down revealing the connecting rod pin.
8. Remove the suction tube assembly from the fluid pump by unscrewing the suction nut with the packing adjustment tool (189-211).
9. Using a 1/2” wrench unscrew the two bolts from the cover assembly. The fluid pump will be hanging loosely at this point.
10. Remove the connecting rod pin out of the connecting rod, allowing the removal of the fluid pump from the machine.

FIG. 14



FLUID PUMP REINSTALL

REFER TO FIGURES 14

. Loosen the packing nut and ensure that the piston rod is in its upper position in the fluid pump body. Slip the sleeve & the retaining ring over the piston rod.
2. Push the piston rod up into the connecting rod & align the holes. Insert the connecting rod pin through the connecting rod & piston. Slip the sleeve up over the connecting rod pin and insert the retaining ring into the groove on the connecting rod.
3. Push the two bolts through the tube spacers & screw them into the cover assembly. Using a 1/2” wrench, tighten the two bolts evenly (alternating between them) until you reach 20 ft-lbs.
4. Reassemble lower suction valve assembly by placing the suction seat, O-ring, suction ball & suction ball guide in the suction nut & screw onto fluid pump body.
5. Reconnect the sensor (331-294-99) to the fluid pump body. Hold the sensor with a 7/8” wrench while tightening the swivel connector (100-003) with an 11/16” wrench. ***DO NOT TURN THE SENSOR.***
6. Start the machine and operate slowly to check the piston rod for binding. Adjust the two bolts, holding the fluid pump body to the cover assembly, if necessary. This will eliminate any binding.
7. Tighten packing nut clockwise until resistance is felt against the Belleville Springs, go 3/4 of a turn more. Put five drops of Airlessco Throat Seal Oil in the packing nut.
8. Run the machine at full pressure for several minutes. Release the pressure by following the Pressure Relief Procedure & readjust the packing nut per step 6 above.
9. Install the connecting rod shield so that the small hole is in the upper right hand corner.

PARTS LIST FIGURE 14

Item No.	Part No.	Description
1	119-028	Connecting Rod Pin
2	331-117	Sleeve
3	331-062	Retaining Ring
4	115-019	Hose Connector
5	100-152	Swivel
6	331-034	Suction Nut
7	100-318	Bolts
8	331-209	Fluid Pump
9	331-093	Piston Rod
10	331-074	Tube Spacers
11	331-111	Connection Rod Shield
12	331-038	Connecting Rod
13	331-234	Cover Assembly

SERVICING THE OUTLET VALVE

DISASSEMBLY OF THE OUTLET VALVE

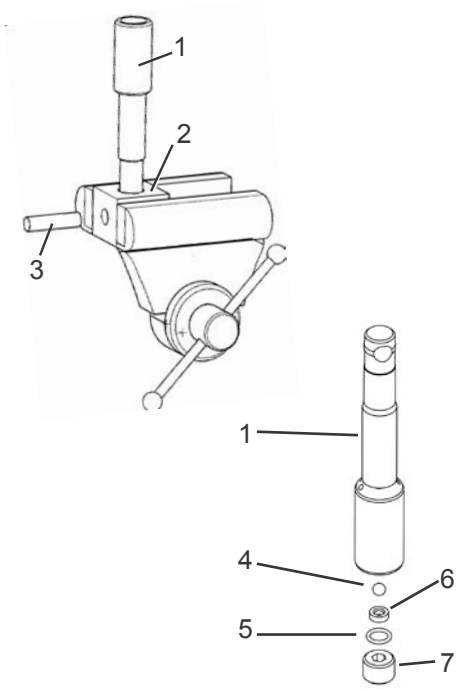
1. Disconnect the Fluid Pump following instructions on page 15.
2. Place piston holder in a vise. Slide piston into the holder & lock in place with a 3/8" dowel.
3. Use a 1/4" allen wrench to unscrew the outlet seat retainer from the piston.
4. Remove the outlet seat, O-ring and outlet ball.
5. Inspect outlet ball & seat for wear. Replace as necessary. Ensure seat is right side up.
6. While piston is still locked in the holder, install parts back into the piston in the following order:

BALL, OUTLET SEAT AND O-RING

Before reinstalling the outlet seat support, apply two drops of Loctite No. 242 (blue) on the threads & torque to 20 ft-lbs.

NOTE: Airlessco LP pump tool kit 188-197 is required for this task. Kit includes: Tightening Bar (189-211), Packing Removal Tool (331-465), Piston Holder (331-195), 3/8" dowel (331-196).

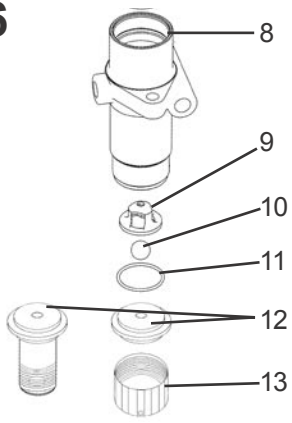
FIG. 15



SERVICING THE INLET VALVE

1. Un-thread and remove suction nut from the fluid pump body.
2. Remove suction seat, O-ring, suction ball and suction retainer.
3. Clean all parts and inspect them for wear or damage, replacing parts as needed.
4. Clean inside of the fluid pump body.
5. Reassemble lower suction valve assembly by placing the suction seat, O-ring, suction ball & suction ball guide in the suction nut & screw onto fluid pump body.

FIG. 16



PARTS LIST FIGURE 15 & 16

Item No.	Part No.	Description
1	331-708	Piston
2	331-195	Piston Holder
3	331-196	Dowel Pin
4	331-027	Outlet Ball
5	331-100	O-Ring
6	331-026	Outlet Seat
7	331-314	Outlet Seat Retainer
8	331-011	Fluid Pump Body
9	331-029	Suction Ball Guide
10	331-030	Suction Ball
11	106-011	O-Ring
12	331-409 331-292	Suction Seat (Lo-Boy) Suction Seat (Hi-Boy)
13	331-034	Suction Nut

PACKING REPLACEMENT PROCEDURES

DISASSEMBLY OF THE FLUID PUMP

REFER TO FIGURE 17 & 18

1. Disconect the Fluid Pump as instructed on page 15.
2. Unscrew & remove the packing nut.
3. Push the piston rod down through the packings & out of the pump.
4. Now push the packing removal tool up throughthe pump & remove from the top bringing packings, spacer & springs along with it, leaving fluid body empty. *Make sure all old packings & glands have been removed from fluid pump.
5. Clean inside of fluid body.
6. Disassemble all parts & clean for reassembly. Discard any old packings.
7. Lubricate leather packing in lightweight oil for 10 minutes prior to reassembly.

REASSEMBLY

REFER TO FIGURE 17

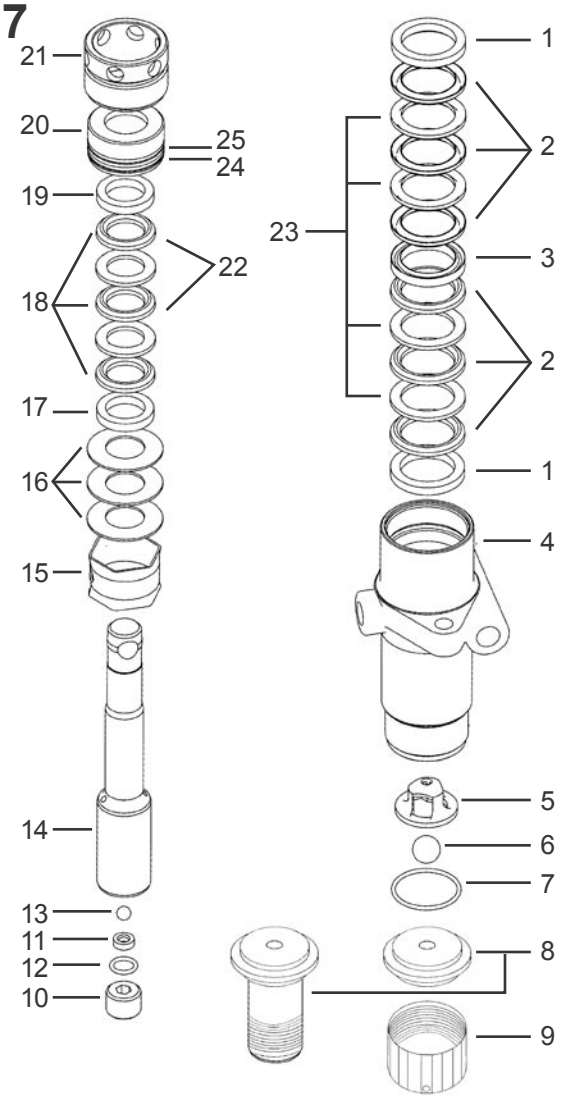
1. Take lower male gland & place it down on the flat side.
2. Take three of the lower polyethylene packings & two of the leather packings & place onto the male gland inthe following order with the inverted side down ***POLYETHYLENE, LEATHER, POLYETHYLENE, LEATHER, POLYETHYLENE.***
3. Take the female adaptor, which is inverted on both sides , & place it on top of your assembled lower packings.
4. Follow step 2 with your packings inverted side up.
5. Take the second lower male gland and place it on top of your assembled packings with the rounded side down.
6. Take assembled glands & packings (13 pieces) & slide onto the lower half of the piston.
7. Take the spacer & slide over the top of the piston (itdoesn't matter which direction it sits, falling onto lower packings.
8. Take three Belleville Springs & slide over the top of the piston in the following order:
   - First spring, curve facing down
   - Second spring, curve facing up
   - Third spring, curve facing down
9. Take the upper male gland & place it rounded side up.
10. Take three upper polyethylene packings & two leather packings & assemble with inverted side down, on to the male gland in the following order: polyethylene, leather, polyethylene, leather, polyethylene.
11. Take upper female gland & place on top of assembled upper packings with the inverted side down.
12. Take assembled upper glands & packings (7 pieces) & slide on over the top of the piston, making sure inverted sides are down.
13. Take the packing holder & replace the white O-ring & the black O-ring with new ones from the packing kit.
14. Slide the packing holder over the top of the upper packings so they fit inside.
15. Lubricate inside of the fluid pump body & the outside of the packings with a light weight oil.
16. Slide assembly into fluid pump body.

TO KEEP PACKINGS SECURED IN CORRECT POSITION, HOLD THE PUMP BODY UPSIDE DOWN & PUSH THE COMPLETED ASSEMBLY UPWARDS INTO THE PUMP BODY. ONCE PLACED INSIDE, TILT PUMP BODY BACK UP TO KEEP ALL PIECES IN.

17. Tighten packing nut onto the top of the fluid pump body & tighten until you feel slight resistance against the Belleville Springs. Using the Packing Adjustment Tool, tighten another 3/4 of a turn.
!8. Reinstall Fluid Pump as instructed on page 15.

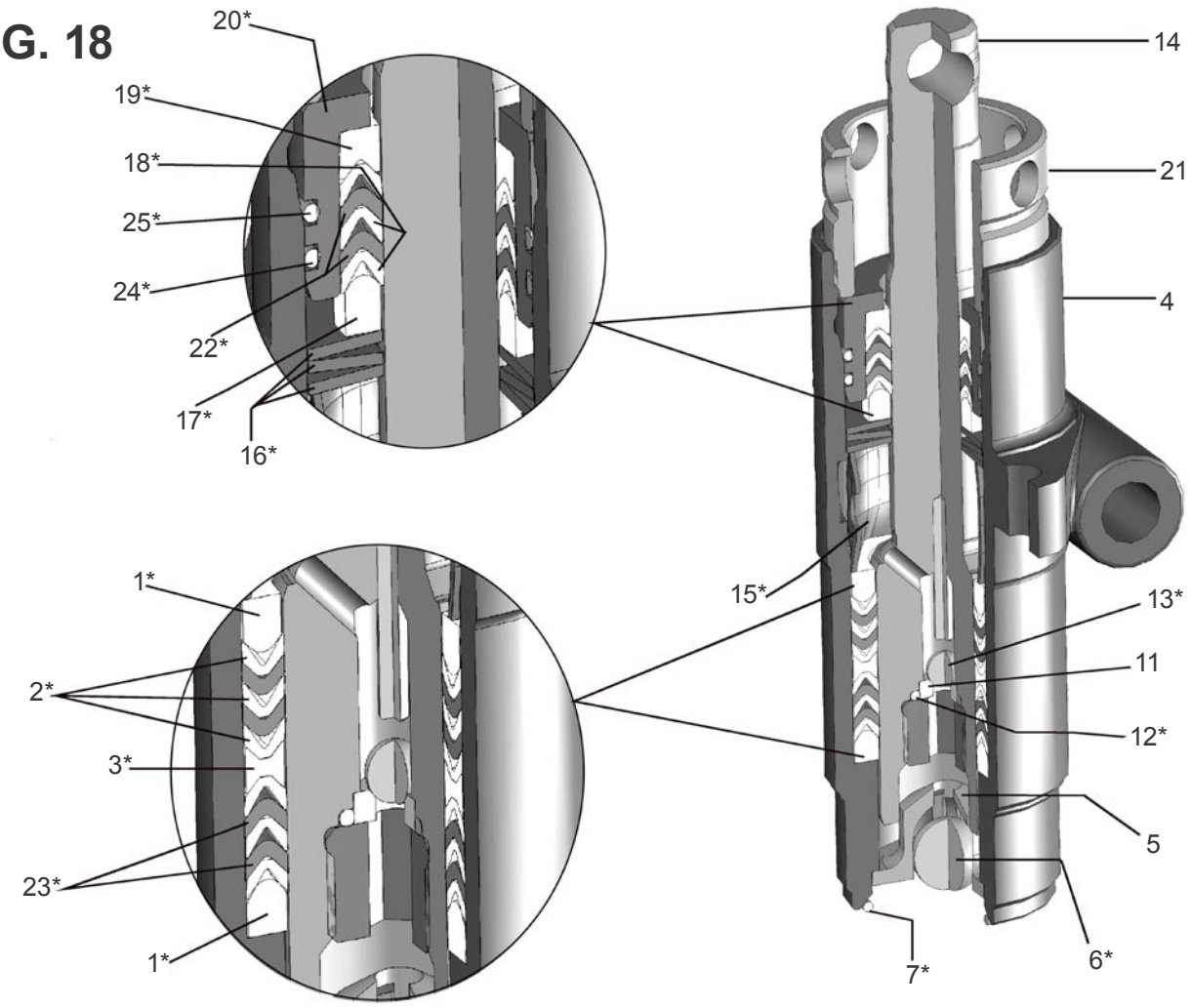
PARTS LIST ON FOLLOWING PAGE

FIG. 17



PACKING REPLACEMENT PROCEDURES

FIG. 18



NOTE: Original packing set was (1) 331-016 and (2) 331-306, less than the standard LP setup. When repacking, use standard packing kit (331-210)

PARTS LIST FIGURE 17 & 18

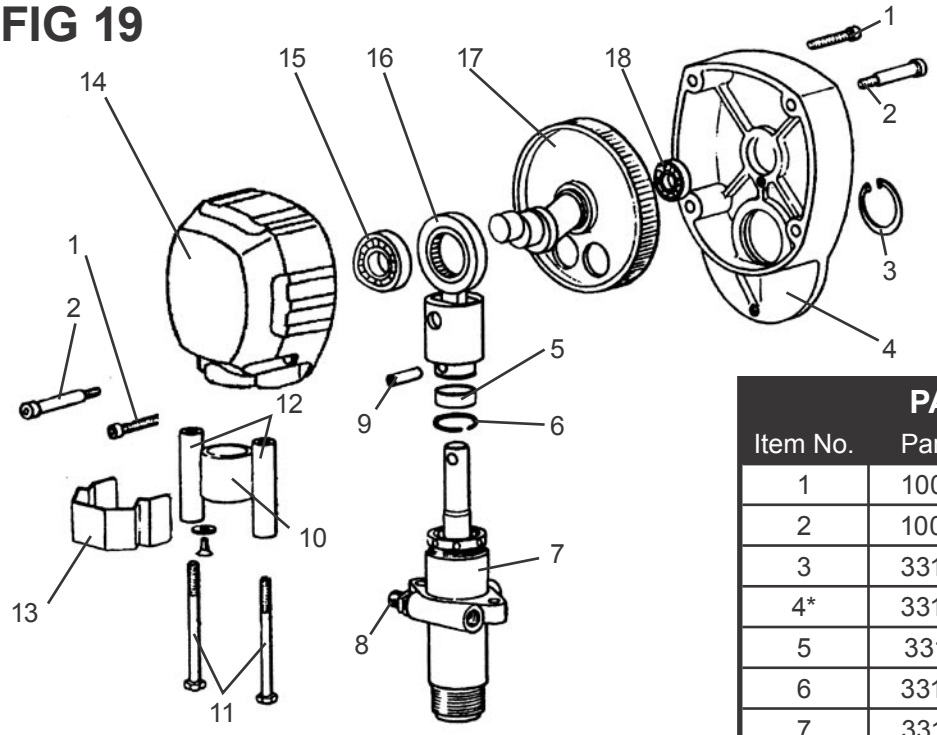
Item No.	Part No.	Description
1*	331-014	Male Gland
2*	331-016	Packing Polyethylene
3*	331-308	Female Adaptor
4	331-011	Fluid Pump Body
5	331-029	Suction Ball Guide
6*	331-030	Suction Ball
7*	106-011	O-Ring
8	331-409 331-292	Suction Seat (Carry & Lo-Boy) Suction Seat (Hi-Boy)
9	331-034	Suction Nut
10	331-314	Outlet Seat Retainer
11	331-026	Outlet Seat
12*	331-100	O-Ring
13*	331-027	Outlet Ball

PARTS LIST FIGURE 17 & 18 CONT.

Item No.	Part No.	Description
14	331-708	Piston
15*	331-018	Spacer
16*	331-025	Belleville Springs
17*	331-022	Male Gland
18*	331-023	Packing Polyethylene
19*	331-021	Female Gland
20*	331-019	Packing Holder
21	331-037	Packing Nut
22*	331-307	Packing Leather
23*	331-306	Packing Leather
24*	106-009	White O-Ring
25*	106-010	Black O-Ring
*	331-210	Packing Kit

GEAR AND PUMP ASSEMBLY

FIG 19



WARNING

DO NOT OPERATE WITHOUT COVER GUARD IN PLACE

PARTS LIST FIGURE 19		
Item No.	Part No.	Description
1	100-381	Bolt (2)
2	100-380	Shoulder Bolt (2)
3	331-088	Retaining Ring
4*	331-040	Gearbox Casting
5	331-117	Sleeve
6	331-062	Retaining Spring
7	331-209	Pump Assy
8	115-019	Hose Connector (1/4NPSXNPT)
9	119-028	Pin
10	331-061	Sleeve Bearing
11	100-318	Bolt (2)
12	331-074	Tube Spacer
13	331-111	Shield
14	331-234	Cover
15	331-046	Bearing
16	331-038	Crosshead Assy
17	331-406	Gear Crank
18	331-047	Bearing

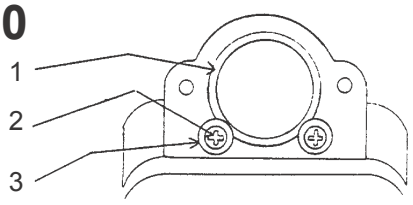
***NOTE**: Can be ordered separately, but is included with Motor Ass'y.

SERVICING GEAR BOX ASSEMBLY

1. Remove fluid pump as per "Fluid Pump Disconnect" procedures on page 15.
2. Remove frame from the gearbox by loosening the four mounting screws.
3. Refer to Figure 19. Separate cover assembly from box by removing bolts from front of cover & back of box & shoulder bolts from front of cover & back of box.
4. Lay unit on its back and disassemble gearbox.
5. Inspect bearings, Crosshead Assembly, Gearcrank & sleeve bearing inside cover assembly for wear/damage. Replace worn/damaged parts.
6. If gear grease needs replacing, replace with gear grease (Part No. 331-132).
7. Clean mating surfaces of cover and box thoroughly. Use Part No. 105-331 ***BLUE XS™ ADVANCED RTV SILICONE INSTANT GASKET.***
8. Reassemble in reverse order.

GEARBOX SLEEVE BEARING REPLACEMENT

FIG 20

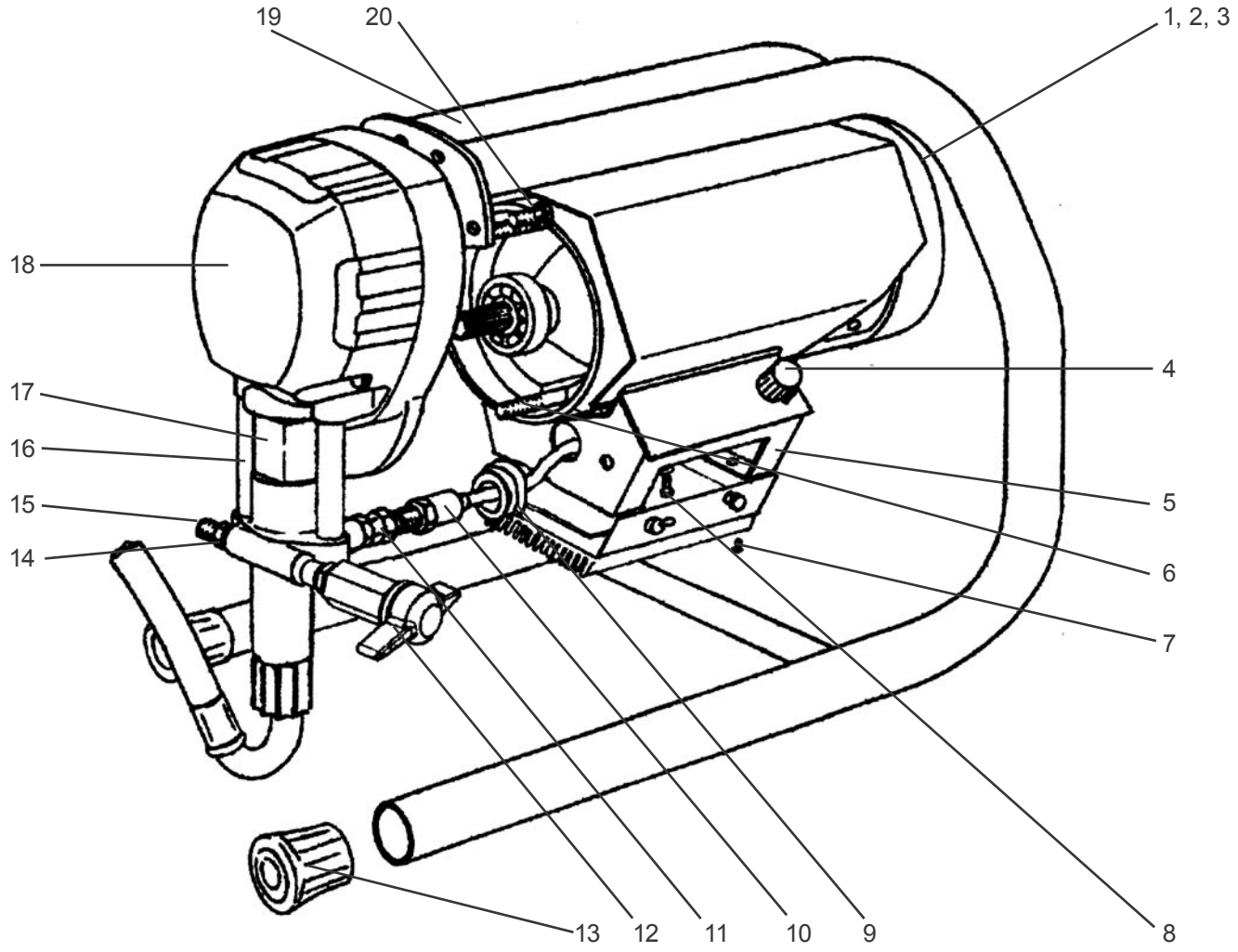


PARTS LIST FIGURE 20		
Item No.	Part No.	Description
1	331-061	Sleeve Bearing
2	331-103	Washer (2)
3	331-197	Screw (2)

NOTE: WHEN REPLACING ITEM (1), COVER OUTSIDE OF SLEEVE WITH CLEAR SILICONE PRIOR TO INSERTING INTO COVER ASSEMBLY

CARRY FRAME MODELS

FIG. 21

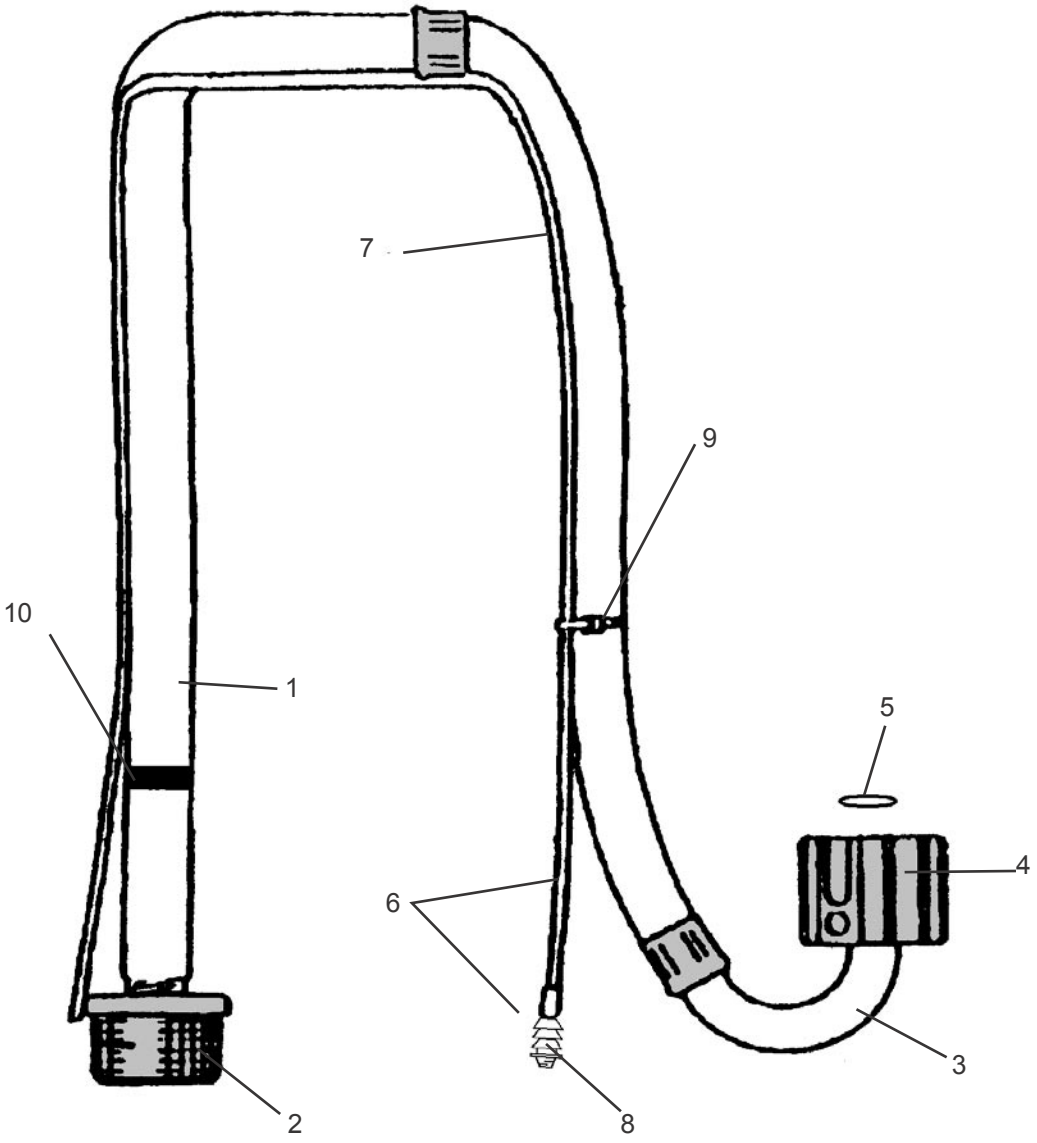


PARTS LIST FIGURE 21		
Item No.	Part No.	Description
1	331-785	Fan
2	331-786	Fan Cover
3	117-090	Fan Cover Screws (3)
4	117-044	Knob
5	331-321	Terminal Box
6	331-787	Bolt (.6HP)
7	111-037	Heatsink Screw (4)
8	100-382	Screw (2)
9	106-500	Sensor Seal
10	331-294-99	Sensor

PARTS LIST FIGURE 21 CONT		
Item No.	Part No.	Description
11	100-003	Swivel
12	100-180	Prime Valve
13	331-048	Rubber Boot (2)
14	100-318	Bolt (2)
15	115-019	Hose Connector (1/4”)
16	331-074	Tube Spacer (2)
17	331-111	Shield
18	331-234	Cover
19	331-401	Frame
20	119-048	Screw (4)

SUCTION ASSEMBLY (331-238)

FIG. 22



PARTS LIST FIGURE 22		
Item No.	Part No.	Description
1	331-290	Suction Hose Assy
2	331-217	Inlet Strainer
3	331-035	Suction Elbow
4	331-034	Suction Nut
5	106-020	PTFE O-Ring

PARTS LIST FIGURE 22 CONT		
Item No.	Part No.	Description
6	331-231	Bypass Hose Assy
7	331-425	Bypass Hose
8	331-090R	Fitting
9	111-016	Nylon Tie
10	331-135	Spring Clip

PRESSURE CONTOL ASS'Y CALIBRATION

NOTE: ANYTIME A SENSOR OR PRESSURE CONTROL ASSEMBLY (BOARD) OR BOTH ARE REPLACED, THE FOLLOWING CALIBRATIONS MUST BE PERFORMED.
NOTE: PRESSURE CONTROL ASSEMBLIES (BOARDS) ARE NOW BEING EQUIPPED WITH A GREEN GROUNDING WIRE ATTACHED. CONTECT THE GROUNDING WIRE TO TERMINAL BOX USING THE SAME SCREW THAT HOLDS THE GROUNDING WIRE FROM THE POWER CORD.

1. ZERO CALIBRATION

1. Place prime/pressure relief valve in the prime (open) position.
2. Set the pressure control knob to the minimum setting (CCW).
3. Remove the screws and lower the pressure control assembly.
4. Ensure the jumper is on the "P-ZR" terminal. Note: This jumper comes with a new pressure control assembly (board) and is installed on the "P-ZR" terminals. If you are "Zero Calibrating" a pressure control assembly presently in the unit, remove jumper from single terminal P-ZR and place on both terminals P-ZR. When Zero Calibration is complete, replace jumper on a single terminal of P-ZR.
5. Turn machine "ON" and ensure it is not cycling.
6. If the yellow zero light on the electrical board is ON, use an insulated screwdriver to turn the "ZERO" trimpot counter-clockwise until the light goes out. Then turn it clockwise until the light just comes back on. 7. If the yellow light is OFF, turn the "Zero" trimpot clockwise, just until the light comes on and stop.
   NOTE: If the yellow light remains constantly "ON", or "OFF" during this calibration, the sensor is defective and should be replaced.
8. IMPORTANT:When calibration is complete, move jumper from both "PZ-R" terminals to single terminal on P-ZR.

2. PRESSURE CALIBRATION

1. Complete the ZERO calibration, as per "ZERO CALIBRATION" prior to commencing this calibration.
2. Attach a 50', 1/4" airless hose, airless gun with 0.017 tip and a 5000 psi glycerin filled pressure gauge to pump.
3. Place the suction tube into a bucket of Coro-chek and water.
4. Turn prime/pressure relief valve to the prime (open) position.
5. Turn pressure control knob clockwise until machine starts to prime.
6. Place the prime/pressure relief valve in the pressure (closed) position.
7. While watching pressure gauge, slowly adjust the pressure trimpot (clockwise to increase and counter clockwise to decrease) until the maximum static pressure is 3000 psi, with the pressure control knob fully clockwise. Trigger the gun several times to ensure pressure returns to 3000 psi .

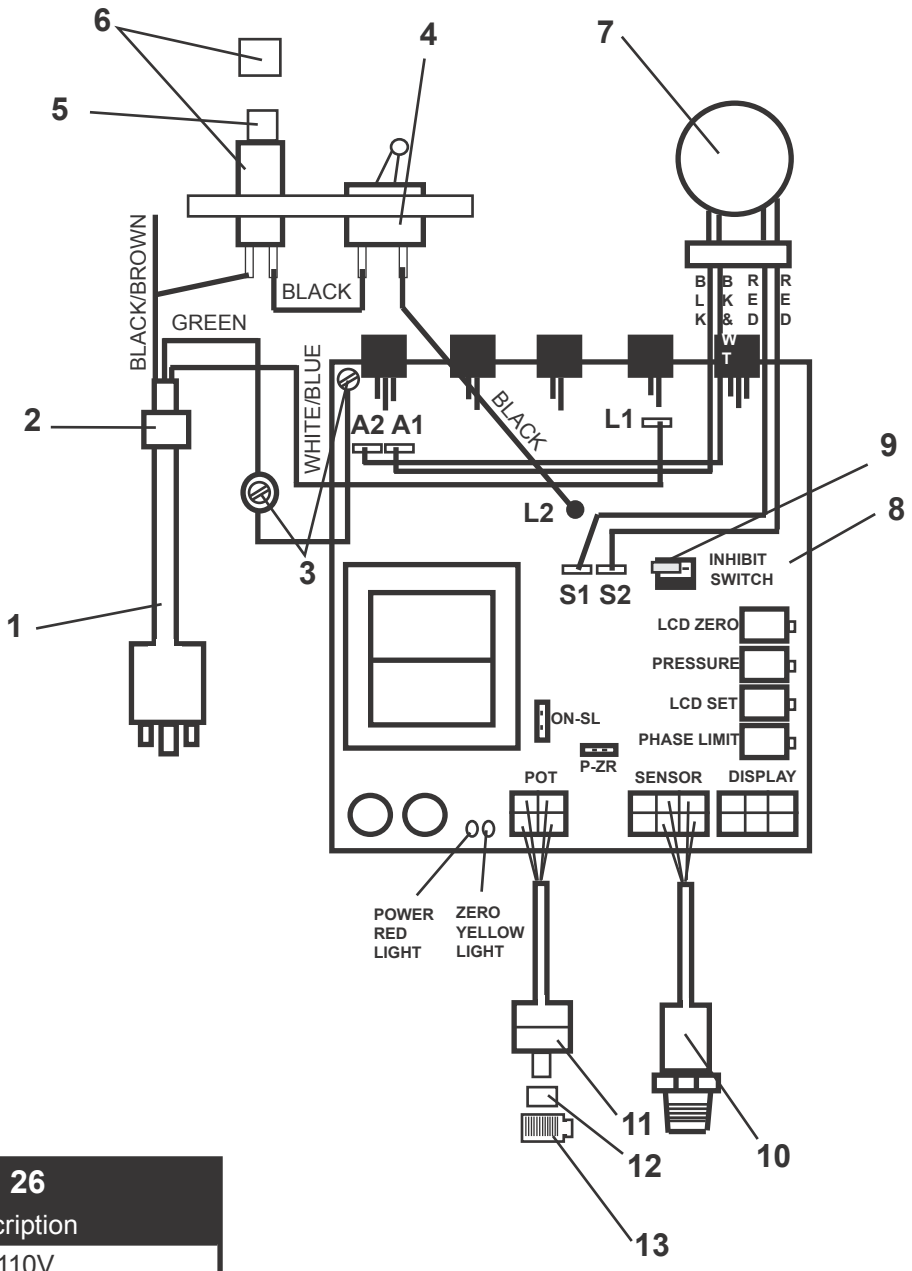
3. PASE LIMIT CALIBRATION

FORMERLY KNOWN AS THE LOW VOLTAGE OR MASTER VOLTAGE CALIBRATION

1. Attach a 50', 1/4" airless hose, airless gun with .017 tip and a 5000 psi glycerin filled pressure gauge to the pump.
2. Place the suction tube into a bucket of anti-freeze and water.
3. Turn pump on and turn up pressure control until the machine starts to prime.
4. Place the prime/pressure relief valve in the pressure (closed) position.
5. Pressurize pump to 600 psi.
6. Trigger the gun several times noting the deadband (the amount of pressure drop before the pump rebuilds to set pressure).
7. If deadband is greater than 100 psi, adjust the phase limit trimpot so that the deadband is less than 100 psi and the pressure increase after the gun trigger is released is less than 200 psi. These pressures are guidelines and may vary slightly from pump to pump.
8. Reattach pressure control assembly to unit.

ELECTRICAL SYSTEM

FIG. 23



PARTS LIST FIGURE 26		
Item No.	Part No.	Description
1	331-168	Electrical Cord 110V
2	331-185	Strain Relief
3	331-138	Screw
4	331-311	Toggle Switch
5	331-328	Fuse 20A Slow Blow
6	331-312	Fuse Holder
7	331-490	0.6HP Motor 110V
8	331-315-99	Pressure Control Assy
9	117-207	Jumper
10	331-294-99	Sensor
11	331-297	Potentiometer
12	331-184	Spacer
13	117-044	Knob

REPLACEMENT OF ELECTRICAL COMPONENTS

WARNING: ALWAYS UNPLUG THE ELECTRICAL CORD BEFORE SERVICING MACHINE!
NOTE: ANYTIME THE PRESSURE CONTROL ASSEMBLY, SENSOR, OR BOTH ARE REPLACED, PERFORM THE CALIBRATIONS.

PRESSURE CONTROL ASSEMBLY (ELECTRICAL CONTROL BOARD)

1. Unplug machine's power cord.
2. Remove four screws heatsink housing.
3. Disconnect all leads from pressure control assembly.
4. Reassemble in reverse order.

SENSOR

1. Remove the four screws, heatsink, and lower the pressure control assembly.
2. Disconnect swivel from sensor by holding sensor with 7/8” wrench and loosening swivel with 11/16” wrench.
3. Disconnect sensor lead from the board. Carefully pull sensor lead out of the terminal box and remove sensor.
4. Reassemble in reverse order.

POTENTIOMETER

1. Lower pressure control assembly as described above.
2. Disconnect potentiometer lead from pressure control assembly.
3. Use a 1/16" allen wrench, loosen set screw in the potentiometer knob and remove knob and spacer.
5. Using a 1/2" wrench or deep socket, remove the nut from the potentiometer shaft assembly.
5. Pull entire potentiometer assembly out of terminal box.
6. Replace in reverse order.

ON-OFF TOGGLE SWITCH

1. Lower the pressure control assembly as described above.
2. Disconnect the two wires on the toggle switch
3. Use a 9/16" wrench to loosen the nut on the toggle switch shaft.
4. Reassemble in reverse order.

FUSE HOLDER

1. Lower pressure control assembly as described above.
2. Disconnect the two wires on the holder.
3. Remove holder cover and fuse.
4. Use 11/16" wrench to remove the nut from the holder shaft.
5. Reassemble in reverse order.

TROUBLESHOOTING - MACHINE DOES NOT START

Cause	Steps
Control Settings	***STEP 1:*** After making sure that the machine is plugged into the wall, verify that the on-off switch is in the ON position and that the pressure control knob is turned all the way to the right (clockwise for maximum pressure).
Fuse	***STEP 2:*** Using your multi-meter, test the fuse for continuity or replace with a new fuse. If the fuse reads good, move on to step three.
Power Source	***STEP 3:*** Using a Phillips Head screwdriver, remove the four screws holding the pressure control assembly. Locate the red light on the board indicating that there is power (it will be red.) If the light is OFF proceed to step four. If the light is ON go to step six.
Power Source	***STEP 4***: Locate the L1 and L2 terminals on the board, and then using your multi-meter check to make sure you have 110 volts AC across the two terminals (the cord wires will still be attached). If there is no voltage at these leads, there is no power getting to the machine. Check your power source (outlet, circuit fuse, extension cord, and power cord). If you have AC voltage at the L1 and L2 terminals, go to step 5.
Thermal Overload	***STEP 5:*** Disconnect the two red motor leads (S1 & S2) and test for continuity between them. No continuity means that the thermal coupler has opened due to excessive motor heat. If the motor is still hot to the touch, allow it to cool and then retest. If the motor is cool and there is not continuity on the red leads, contact Airlessco Technical Support to repair/replace the thermal coupler. Continuity shows that the motor's thermal coupler has not tripped. Proceed to step six.
Pressure Control Assembly (Board)	***STEP 6:*** If everything checks out in steps one through five and the power indicating light is still out, replace the pressure control assembly.
Motor	***STEP 7:*** Remove the motor brush covers and turn the machine on. Set the potentiometer (POT) at maximum pressure and check for DC voltage across both brush terminals. You should read greater than 80 volts DC. I***F YOU DO NOT HAVE DC VOLTAGE GO TO STEP EIGHT.*** If you have DC voltage, turn the machine off and unplug it from the wall. Check to make sure that the brushes are making good contact with the armature. Replace the brushes if they are less than 1/2" long. If the brushes are good, replace the motor.
Sensor	***STEP 8:*** Plug another sensor into the board and perform the zero calibration procedure. If the machine starts to run, the sensor was bad. If there is no replacement sensor available, use a multi-meter to test the resistance across the red and black wires of the sensor (be sure to test at the plug). You should read 1.5 - 3.5k ohms. A faulty sensor usually reads no continuity (open). If the sensor passes all the tests move to step nine.
Pressure Control Knob (Potentiometer)	***STEP 9:*** Plug another potentiometer (POT) into the control board. If the machine starts, the old POT is bad. When a replacement POT is not available, remove the POT lead (with the machine turned off) from the control board and test the resistance between the red and black wires (be sure to test at the plug). The resistance should read between 8-12k ohms if it is outside of this range replace the POT.
Pressure Control Assembly (Board)	***STEP 10:*** If you have DC voltage at the motor brushes and all of the components check out fine in steps eight and nine, replace the pressure control assembly.

AIRLESSCO ACCESSORIES

Quick Flush™

- The only clean water flushing system
- Cuts sprayer clean-up time in half!
- Connects to standard garden hose to backflush sprayer through gun
- Includes "F" and "G" adapters to work with all brands of gun

Part # ***170-005***

PAINT HOPPER

For use on small jobs where paint is kept in smaller than 5 gallon containers. Threads onto pick-up tube of carry or LoBoy framed Airlessco sprayers.

331-775 6 Liter Paint Hopper

PUMP CONDITIONER

Should be used on piston pumps between uses to prevent paint from drying on the piston & causing packing wear.

010-001 Display of 48 - 1 oz. bottles
010-009 1 quart bottle
010-019 1 Gallon bottle

Case quantity: 12 on quarts, 4 on gallons

PAINT STRAINERS

Pre-filter your paint using strainer bags. One dozen per pack.

100-064 Used to cover suction filter
100-065 5 Gallon strainer

HOSE COVER

4 mil poly protects your airless hose from paint and abrasion damage. Comes in 1000' roll with perforations each 50'.

100-219 Hose Cover Roll
100-426 Case of 6 Rolls

HIGH PRESSURE AIRLESS HOSE

Strong yet flexible, for airless sprayers up to 3300 PSI

Part No:	Hose Description
100-012	3/16" Whip Hose, 4 Ft.
100-040	1/4" Whip Hose, 3 Ft.
100-204	1/4" Whip Hose, 5 Ft.
100-199	3/8" Whip Hose, 6 Ft.
100-011	1/4" Hose, 50 Ft.
100-023	3/8" Hose, 50 Ft.
100-037	1/2" Hose, 50 Ft.
100-010	1/4" Hose Connector
100-009	3/8" Hose Connector

For a complete listing of all available accessories see the Airlessco Accessories Catalog, Part # 001-357.

STAY CLEAN™

Spray protectant for machine to prevent paint from sticking to it. Keeps your sprayer looking new for years!

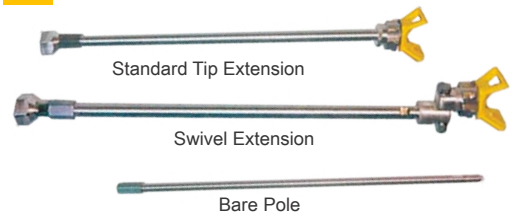
114-030 20 oz. can
Case quantity: 12 cans

THROAT SEAL OIL

Used in the wet cup of a piston pump to prevent paint from drying on the piston & causing damage to the upper packing. Use with all piston pumps.

188-187 6 oz. Bottle
188-392 1 qt. Bottle

XTEND-A-POLE SYSTEM



STANDARD TIP EXTENSION, "G" Thread

032-170 6" Long
032-171 12" Long
032-172 18" Long
032-173 24" Long

SWIVEL EXTENSION, "G" Thread

032-184 36" Long

BARE POLE

Add Tip Extension or Swivel Extension to create desired length

032-053 24" Long
032-054 36" Long

SWIVEL "G" THREAD

032-035-55 7/8" x 14 Swivel

ADAPTERS

90° Pole to Gun Adapter
032-042

Gun Nut "F" Thread 11/16-16
032-010

Gun Nut "G" Thread 7/8-14
032-011

"F to G" Gun adapter to attach Graco® tips to Airlessco guns.
032-012